

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for transmitting data packets (DP) in multiple data flows to/from a mobile station (MS) in a mobile communications system (HPLMN , VPLMN) having a packet data transmission capability, the method comprising ~~the steps of:~~
setting up a data transmission path for the mobile station (MS) for routing data packets (DP) through the mobile communications system (HPLMN , VPLMN);
transmitting data packets (DP) through the mobile communications system (HPLMN) between said mobile station (MS) and an external communication system (11, 12, VPLMN , HPLMN);
~~associating at least one profile (Pr) with said data transmission path, said at least one profile comprising at least one quality of service parameter, or QoS parameter;~~
~~scheduling and policing the transmission of the data packets (DP) within at least one QoS parameter indicated by said profile (Pr);~~
~~characterized by the further steps of:~~
associating multiple profiles (Pr) with the data transmission path, each profile (Pr) comprising at least one QoS parameter several quality parameters;
providing each of said multiple data flows with a profile tag (PrT) indicating one of the multiple profiles (Pr) associated with the data transmission path in question; and
scheduling and policing the transmission of individual data packets (DP) on the basis of said at least one QoS parameter several quality parameters of the profile (Pr) indicated by the profile tag (PrT) associated with each of the data flows flow in question.

2. (Currently Amended) A method according to claim 1, characterized by the steps of further comprising:

executing at least two applications in said mobile station (MS), each application belonging to a class/type and having at least one flow associated thereto;

transmitting, within a single transmission path, data packets (DP) of said at least two applications; and

providing each flow of each application class/type with a profile tag (PrT) indicating the QoS each quality parameter required by the respective application class/type.

3. (Currently Amended) A method according to claim 2, characterized by further comprising providing each flow of each individual application with a profile tag (PrT).

4. (Currently Amended) A method according to any one of the preceding claims claim 1, characterized by further comprising providing substantially each of several individual data packets (DP) with a profile tag (PrT).

5. (Currently Amended) A method according to any one of the preceding claims claim 1, characterized by providing, as QoS-quality parameters, each profile (Pr) with priority information indicating one of at least two priority levels.

6. (Currently Amended) A method according to any one of the preceding claims claim 1, characterized by the steps of further comprising:

providing in the mobile communications system at least one connection leg with at least two paths having different reliabilities;

providing, as one QoS-quality parameter, each profile (Pr) with reliability information indicating one of at least two reliability classes; and

multiplexing the data packets (DP) to said at least two paths according to said reliability information.

7. (Currently Amended) A method according to any one of the preceding claims claim 1, characterized by the steps of further comprising:

forming in the mobile communications system at least one connection leg with a connection-oriented path and a connectionless path, the former being more reliable than the latter; and

deciding whether to send a data packet (DP) over the connection-oriented path or the connectionless path on the basis of said reliability information.

8. (Currently Amended) A method according to claim 7, characterized by further comprising multiplexing data packets (DP) associated with two or more profiles (Pr) to said connection-oriented and connectionless paths in said at least one connection leg.

9. (Currently Amended) A method according to ~~any one of the preceding claims~~ claim 1, characterized in that wherein at least one of the profiles (P_f) comprises at least one further QoS-quality parameter indicating a further limit for said scheduling and policing.

10. (Currently Amended) A method according to claim 9, characterized in that wherein said at least one further QoS-quality parameter includes one or more of the following: mean bit rate, peak bit rate, service precedence, delay class and reliability.

11. (Currently Amended) A method according to ~~any one of the preceding claims~~ claim 1, characterized in that wherein
said at least one further QoS-quality parameter defines a mean bit rate;
the actual mean bit rate used by the mobile station (MS) is monitored; and
data packets (DP) to/from the mobile station (MS) are discarded, or at least their precedence is lowered if the actual mean bit rate exceeds the mean bit rate defined by said at least one further QoS-quality parameter.

12. (Currently Amended) A method according to ~~any one of the preceding claims~~ claim 1, characterized by further comprising mapping QoS-quality parameters used in the mobile communications system ($HPLMN$, $VPLMN$) to those used in a user application in said mobile station (MS) or to those used in said external communication system (11, 12, $VPLMN$), and vice versa.

13. (Currently Amended) A method according to ~~any one of claims 2 to 12~~ claim 2, characterized by further comprising:
establishing one default profile (P_{f0}) which is associated with said data transmission path, and a specific profile (P_f) for each application or application class/type being executed in the mobile station; and
reading a QoS-quality parameter from the default profile (P_{f0}) if the corresponding QoS-quality parameter is missing from the specific profile in question.

14. (Currently Amended) A method according to ~~any one of the preceding claims~~ claim 1, characterized by further comprising associating a packet data protocol context known per se with the data transmission path.

15. (Currently Amended) A method according to claim 13, characterized by further comprising associating said multiple profiles (Pr) with said packet data protocol context.

16. (Currently Amended) An apparatus (MS , $GGSN$) for transmitting data packets (DP) in multiple data flows in a mobile communications system ($HPLMN$, $VPLMN$) having a packet data transmission capability, the apparatus being arranged to:

set up a data transmission path for the mobile station (MS) for routing data packets (DP) through the mobile communications system ($HPLMN$, $VPLMN$);

transmit data packets (DP) through the mobile communications system ($HPLMN$) between said mobile station (MS) and an external communication system ($11, 12, VPLMN$, $HPLMN$);

associate at least one profile (Pr) with said data transmission path, said at least one profile comprising at least one quality of service parameter, or QoS parameter;

schedule and police the transmission of the data packets (DP) within at least one QoS parameter indicated by said profile (Pr);

characterized in that the apparatus is arranged to:

associate multiple profiles (Pr) with the data transmission path, each profile (Pr) comprising at least one QoS parameter several quality parameters;

provide each of said multiple data flows with a profile tag (PrT) indicating one of the multiple profiles (Pr) associated with the data transmission path in question; and

schedule and police the transmission of individual data packets (DP) on the basis of said at least one QoS parameter several quality parameters of the profile (Pr) indicated by the profile tag (PrT) associated with each of the data flow flows in question.

17. (Currently Amended) An apparatus according to claim 16, characterized in that wherein the apparatus is or comprises a mobile radio station (MS).

18. (Currently Amended) An apparatus according to claim 16, characterized in that wherein the apparatus is a support node ($SGSN$, $GGSN$) of a packet radio network ($HPLMN$, $VPLMN$).